



Sea Grant Educators use hands-on methods to teach students about fisheries impacts. Credit: Mississippi Alabama Sea Grant

The Sea Grant model of integrating research, outreach, and education uniquely positions Sea Grant Educators to bring ocean, coastal, and Great Lakes science literacy to the U.S. population, beginning with preschool students and continuing through lifelong learners. Educators' backgrounds and expertise in both technical science and education, as well as Sea Grant's strong affiliation with research universities, results in an education network unequaled in its ability to obtain and deliver current ocean, coastal, and Great Lakes science to students of all ages.

Through continued production of high-quality materials, curricula, and programs based on national and state standards, Sea Grant Educators have emerged as national leaders, providing exemplary, science-based teacher preparation and professional development opportunities on a range of ocean, coastal, and Great Lakes education topics.

## Sea Grant Education Impacts

- **MIT Sea Grant's** Ocean Engineering Experience summer academic program (pictured right) continued to give participating 11<sup>th</sup> and 12<sup>th</sup> grade students a two-week opportunity to gain in-depth experience in the field of ocean engineering through hands-on design and fabrication experiences while aiming to solve a real world engineering challenge.
- **Ohio Sea Grant's** Stone Lab offered a total of 3,374 students the chance to be a scientist for a day, participating in activities such as fish trawling and seining, fish identification and dissection, plankton identification, water quality monitoring and much more to show them real-world science applications outside the classroom.



MIT Sea Grant's Ocean Engineering Experience summer academic program introduces high school students to open ended problem solving, design, and fabrication. Credit: MIT Sea Grant



Teams of teachers meet and develop a workshop. Credit: Connecticut Sea Grant

- **USC Sea Grant** partnered with University of Florida to obtain funding from the National Fish and Wildlife Service to produce two children's books, two videos and associated curriculum to educate over 700 educators and students about preventing the introduction of aquatic species through the release of pets and/or classroom organisms.
- **Florida Sea Grant** researchers and aquaculture specialists and partners developed a standardized aquaculture curriculum that instructors can use to teach science, math, and vocational skills through hands-on experiences. In 2012 more than 110 students in 22 schools have helped to construct recirculating aquaculture systems as an educational tool.

- **Connecticut Sea Grant** from 2002 to 2013, the Long Island Sound Mentor Teacher Program has helped 366 peers incorporate Long Island Sound content into existing curricula, to the benefit of more than 17,000 K-12 students in Connecticut and New York (pictured left).
- **New Hampshire Sea Grant** trained volunteers in marine education, providing over \$145,000 worth of services to marine education centers in the state.
- **Oregon Sea Grant** faculty and affiliates have instituted M.S. and Ph.D. programs in free-choice learning. More than 30 advanced-degree graduates now work in universities, museums, zoos, aquariums, and state and federal agencies to bring research-based decision making to the field of informal ocean science education. A \$2.6 million National Science Foundation grant was awarded for their Free-Choice Learning Lab at Hatfield Marine Science Center (pictured right).



With the help of Oregon Sea Grant the Hatfield Marine Science Center has revamped exhibits to facilitate free-choice learning. Credit: Oregon Sea Grant

## Environmental Literacy and Workforce Development

*Environmental Literacy and Workforce Development* is one of the four focus areas in Sea Grant's 2014-17 National Strategic Plan. Sea Grant recognizes that environmental literacy is a fundamental component of an informed public in the 21<sup>st</sup> century which possesses the ability to understand scientific evidence and make knowledgeable decisions about environmental issues. To help achieve that vision, Sea Grant Educators are working in coastal communities across the United States to promote ocean, coastal and Great Lake science to children and life long learners.



## SCIENCE SERVING AMERICA'S COASTS

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# National Graduate Sea Grant Fellowships



## Sea Grant John A. Knauss Marine Policy Fellowship

The prestigious Dean John A. Knauss Fellowship, established in 1979, provides a unique educational experience to graduate students who have an interest in ocean and coastal resources and in the national policy decisions affecting those resources.

The National Sea Grant College Program awarded 49 Fellowships to highly qualified graduate students in 2013. Each student was placed with a "host" in the legislative or executive branch of government in Washington, DC to learn about marine policy.

## Graduate Research



A graduate student teaches classes about her research. Credit University of Hawaii Sea Grant

Sea Grant invests heavily in graduate student support in addition to overall investment in environmental literacy. More than 50% of the Sea Grant research projects depend on graduate students, leading a total of 1,892 graduate students supported by Sea Grant in 2012. Graduate students supported by Sea Grant's education investment are a crucial part of the success of Sea Grant research.

## Planning and Evaluation

The effectiveness of the National Sea Grant College Program's education efforts is rigorously evaluated as part of the Planning, Implementation, and Evaluation process. Once every four years, individual Sea Grant Programs undergo site visit and program performance reviews. The site review evaluates each Program's management and organization, stakeholder engagement, and collaborative network activities, while the performance review evaluates each Sea Grant Program's performance according to the priorities set forth in each Program's strategic plan as well as the Program's overall program impact based on the Federal investment.

These two independent reviews provide a comprehensive picture of the effectiveness of each Sea Grant Program. Programs are also required to submit annual reports for review by NOAA to track and report progress towards their strategic plans, national performance measures, and metrics. The results from past reviews are clear: Sea Grant Programs, and specifically their education efforts, are well-managed, cost-effective and provide valuable services to stakeholders.

## Sea Grant National Marine Fisheries Service Fellowship

The Sea Grant National Marine Fisheries Service Graduate Fellowship was created in 1999 to encourage qualified applicants to pursue careers in either population and ecosystem dynamics or marine resource economics.

This multi-year fellowship was awarded to seven PhD students in 2013, bringing the total number of fellows supported since its inception to 23. Each Fellow works closely with an expert mentor from NOAA Fisheries who may serve on the Fellow's PhD committee. The fellowship accelerates career development and provides valuable real-world experience.

**About Sea Grant:** The Sea Grant model, captured in the National Sea Grant College Act of 2008, integrates research, outreach, and education for science with real world impacts. To share and explain new research discoveries, engage citizens in decision-making processes and empower stakeholders to address national, state and local issues as they emerge, Sea Grant reaches out through programs of education, extension and communication. Specialists in each of these areas translate research into usable information and products for many audiences, ensuring that scientific information is delivered to those who need it, and in ways that are relevant.



Sea Grant has programs in every ocean, coastal, and Great Lakes state and U.S. territory.

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